

**Notice of Allowability**

**Application No.**

09/271,469

**Examiner**

Lamont M Spooner

**Applicant(s)**

GOPALAKRISHNAN ET AL.

**Art Unit**

2654

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 1/21/05.
2. ☒ The allowed claim(s) is/are 42-47 and 60.
3. ☒ The drawings filed on 17 March 1999 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☒ to Paper No./Mail Date 3/30/2004.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 42-47, and 60 are allowed.
2. The following is a statement of reasons for the indication of allowable subject matter:

Regarding **claims 42 and 60** as understood by the Examiner, the closest prior art of Kanevsky et al. (U.S. Patent No. 5,835,888) reads on providing a fixed set of allowable endings, including an empty ending (C.3.lines 50-53,C.5.lines 9-13) and providing a fixed set of constraints for splitting words into stems (C.5.lines 10-13), randomly splitting a word to generate an ending from the fixed list of allowable endings (C.5.lines 9-16), defining and storing a stem set containing the stem generated at said splitting and a word set containing the word (C.3.lines 50-53-the table stores the stem and the word), determining possible splits for a word to generate stems and endings therefrom, using the fixed set of allowable endings and the fixed set of constraints (C.5.lines 9-13)

Prior art does not teach nor fairly suggest:

the steps and combination of (c) initializing a split map of words and the corresponding stems and endings by setting a variable t to a predetermined value, and selecting a first word from the fixed vocabulary, (f) determining whether t is less than the size of the vocabulary, obtaining a new word from the vocabulary V, when t is less than the size of the vocabulary, (h) determining possible splits for the new word to generate stems and endings therefrom, using the fixed set of allowable endings and the fixed set

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of constraints, (i) determining whether there is a split for the new word that generates a previously stored stem of the stem set, (j) splitting the current word into the previously stored stem and an ending of the set of allowable endings, when there is a split for the new word that generates the previously stored stem of the stem set, (k) determining whether another previously stored stem in the stem set can be replaced by a new stem generated, when there is no split for the current word that generates the previously stored stem of the stem set, (l) redefining the stem set and the split map to include the new stem generated at (h) in place of the other previously stored stem, when the other previously stored stem can be replaced by the new stem generated at step (h), (m) redefining the stem set to include any new stem into which the current word may be split and extending the split map to include the current word by splitting the new word into the new stem, when the other previously stored stem in the stem set cannot be replaced by the new stem generated at step (h), and (n) incrementing t and returning to step (f) if t is less than the size of the vocabulary V.

**Claims 43-47** are allowable as they further limit their parent claims.

3. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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5. Claims 42-47, and 60 have been renumbered as claims 1-7, respectively.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kadashevich et al. (US Patent No. 5,323,316 Jun. 21, 1994, 5,708,829 Jan. 13, 1998, and 5,369,577 Nov. 29, 1994) teaches generating a parse tree structure which replaces a stem with a base form in order to generate a valid root word.
- Weeks (US Patent no. 6,334,132 filed Jun. 2, 1998) teaches reducing a vocabulary database by breaking words into stem and endings and having a list of prefixes and suffixes which are used to reduce the vocabulary items to a basic form.
- Gaussier et al. (US Patent No. 6,308,149 filed Dec. 16, 1998) teaches reducing the size of a vocabulary resulting in faster search and information compression by sub-strings/stems from suffixes determination and grouping suffixes related to a sub-string, which may be a stem, as different words may be generated from the base word, prefix or stem, related to a suffix set.
- Brewster et al. (US Patent No. 6,070,133 filed Jul. 21, 1997) teaches having a text engine wherein a suffix and a prefix list is used to help reduce each word to its stem. After stemming words, word forms are reduced to a common form, wherein the stemming

reduces the dimensionality of the vocabulary needed to describe an original document, thereby producing a more focused list of words.

- Cohen (US Patent No. 5,752,051 May 12, 1998) teaches generating an index of terms which differ only by suffixes to a same root, allowing unification of a vocabulary which would increase the likelihood of matching for document comparison.
- Franz et al. (US Patent No. 6,278,968 filed Jan. 29, 1999) teaches reducing a knowledge base by using an analyzer for inflectional morphology which reduces word forms to their stem or base form in a knowledge base, under the concept that different inflections do not typically influence translational context.
- Jacquemin et al. (US Patent No. 6,101,492 filed Jul. 2, 1998) teaches having a base form of a word (stem) and all possible base-inflection combinations identified.
- Gandhi et al. (US Patent No. 6,285,980 filed Nov. 2, 1998) teaches simplifying a word set by having shared stems which follow a rule base for defining how the words are used in a specified vocabulary.
- Barry et al. (US Patent No. 6,308,156 filed Sep. 14, 1998) teaches having various substitute mechanisms engaged in order to verify the pronunciation of a word, from word and word components, wherein a word may be constructed from stored stem and ending components.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M Spooner whose telephone number is 703/305-8661. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 703/305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lms  
2/9/05

  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER